

### **Abstract**

A trench-gated MOSFET includes adjacent mesas formed on opposite sides of a trench. A body region in the first mesa extends downward below the level of the trenches  
5 and laterally across the bottom of the trenches. The body region in the second mesa extends part of the way down the mesa, leaving a portion of the drain abutting the trench. The body region in the second mesa includes a channel region adjacent a wall of the trench. The area where the drain abuts the trench is thus relatively restricted and the drain-gate capacitance of the device is reduced. Moreover, the drain-gate capacitance is  
10 made independent of the depth and width of the trenches, allowing greater freedom in the design of the MOSFET.